V-Fee

EcolSciences, Inc.
Environmental Management & Regulatory Compliance

April 13, 2023

Mr. Dennis Contois
New Jersey Department of Environmental Protection
Division of Land Resource Protection
Mail Code 501-02A
P.O. Box 420
Trenton, New Jersey 08625

Via email at Dennis.Contois@dep.nj.gov

Re: Application for a Flood Hazard Area Verification and Individual Permit and
Freshwater Wetlands General Permit Number 11, Transition Area Waiver-Redevelopment, and
Transition Area Waiver pursuant to N.J.A.C. 7:7A-8.1(d)
Block 801, Lot 20
Borough of Mendham
Morris County, New Jersey
File No. 1418-20-0001.1

Dear Mr. Contois:

This letter is in response to your deficiency letter dated February 17, 2023. Below and attached are responses to the following items:

1. *The applicant is required to provide revisions and demonstrate that hydrologic and hydraulic analysis extend at least 500 feet upstream and downstream of the property limits.*

At the downstream extents, the model begins just upstream of Patriots Path. This is approximately 500 feet downstream from the project site and encompasses any significant features that greatly impact flood elevations near the site. The upstream limits begin at the outlet of a 24" High Density Polyethylene (HDPE) pipe that runs east to west under Dean Road. There is no open channel further upstream of this point and all flow is either closed pipe or stormwater runoff.

2. *The applicant is required to provide a revised watershed drainage area on a field topographic survey in the form of a scaled drawing, with a date and title block as required by N.J.A.C. 13:40-8, that is digitally signed and sealed by a professional land surveyor licensed in New Jersey. The topo map must include:*
   i. The boundaries of the drainage area

A topographic map that includes the drainage area boundaries has been added to the Appendix C of the Flood Hazard Area Study report.

   ii. Time of concentration calculations, flow path within the drainage area, marking each segment of sheet flow, shallow concentrated flow, and open channel flow,

The time of concentration flowpaths are displayed in the topographic map in Appendix C of the Flood Hazard Area Study Report.

iii. An overlay of the soil types within the drainage area,

A soils map is located in Appendix C of the Flood Hazard Area Study Report.

iv. A tabulation of the different land covers within the drainage area (in acres), and computation showing the calculated composite curve number for the drainage area.

A landuse map is located in Appendix C of the Flood Hazard Area Study Report.

3. HEC-RAS is used; therefore, the applicant is required to provide the following information:

a.) Photographs at each cross-section documenting the land cover in the channel, left overbank, and right overbank to support the selection of the Manning's n value in these areas.

Photos at each of the model cross sections can be found in Appendix B of the Flood Hazard Area Study Report.

b.) Signed and sealed cross-sections plotted on engineering drawings with all cross-section drawn looking downstream and the channel and immediate overbank areas field surveyed.

Cross Sections can be found on sheets NJDEP-9 – NJDEP-12 of the NJDEP Permitting Plan.

c.) A topographic plan showing location, orientation, and lateral extent of each cross section.

A topographic plan depicting the location, orientation, and extent of each cross section can be found on sheet NJDEP-9 of the NJDEP Permitting Plan.

d.) A plan view of the calculated flood hazard limits, floodway limits including the left and right encroachment stations shown on each cross-section.

The Cross Section Detail Plan depicting a plan view of the calculated flood hazard limits and floodway limits can be found on sheet NJDEP-10 of the NJDEP Permitting Plans.

e.) Input data used in the HEC-RAS analysis, including flow rates, starting water surface elevations, flow regime, geometric data (e.g., station, elevation, bank station location, Manning's n values at each cross section), reach lengths between cross-sections, contraction and expansion coefficients, ineffective flow areas, levees, and/or blocked obstructions.

The model inputs and outputs, including the full HEC-RAS Summary Report, are included in Appendix B of the Flood Hazard Area Study Report.

f.) Output data calculated by HEC-RAS, including summary output tables (typically Standard Table 1), detailed output tables, and the summary of warnings, errors, and notes.

The model inputs and outputs, including the full HEC-RAS Summary Report, are included in Appendix B of the Flood Hazard Area Study Report.

g.) An electronic version of the HEC-RAS files.

The HEC-RAS model has been included as part of this submission.

h.) The applicant must also explain why the warning messages do not invalidate the results of the model and document the steps that were taken to resolve the warning messages. The Department may require further revisions to the model based on these warning messages.

Section 3.0 of the Flood Hazard Area Study Report discussed the notes and warnings from the HEC-RAS model. The common notes were recommendations for additional cross sections because conveyance ratios were below 0.7 or greater than 1.4, defaulting to critical depth because of a subcritical solution could not be calculated, and locations of split flow. Princeton Hydro tested adding additional cross sections as recommended and determined that they did not significantly changes the results. The cross sections where critical depth was defaulted occurred at abrupt changes in the channel slope. In these instances, it could be expected that the flow would go critical or supercritical. In compliance with the FHA Control Act Technical Manual, no supercritical depths were mapped and therefore, the critical depth solution calculated by HEC-RAS provided the most conservative flood elevation at those specific cross sections. The split flows are the result of localized hills and peaks within the floodplain, resulting in flow splits at some cross sections.

4. *The regulated waters, top of bank, and riparian zone are not shown accurately on the plans. The onsite segment of the North Branch Raritan River tributary shown within the western property corner, and labelled as "stream" on the previously approved Letter of Interpretation Line Verification (LOI-V), is a regulated water per N.J.A.C. 7:13-2.2. The attached markup plan of Drawing NJDEP-5 shows the stream drawn in blue and the approximate boundaries of the associated inner-150-foot and 300-foot riparian zone in blue. Furthermore, based on a review of recent and historic aerial photography (1961, 1974, etc.), an additional waterway seems to occur within the northwestern property corner. The feature is mapped per the 2016 State Surface Water Quality Standards and the 2015 National Hydrography Dataset. The feature and its inner-and-outer riparian zone are also approximately drawn in light blue on the attached markup plan. Please clarify if this feature meets the definition of a regulated water and note that a Division field inspection may be required.*
   a. *Following the above, label the "top of bank" of all waters onsite and update the riparian zone limits and all riparian zone disturbances accordingly.*

EcolSciences Inc. previously delineated a regulated water in the extreme northwestern portion of the site (denoted by flags S-1 to S-4 and SA-1 to SA-3). This regulated water is a portion of the NJDEP mapped unnamed tributary of the North Branch of the Raritan River that generally flows to the north

of the site. For clarity, this feature will be referred to as the "main regulated water." Please see the attached annotated photograph number 1. The photograph locations are shown on Figure 8.

The NJDEP maps (2016 State Surface Water Quality Standards and the 2015 National Hydrography Dataset) a feature within the northern portion of the site near Wetland Flag WB-17. For clarity, this feature will be referred to as the "northern feature." Based upon current and historic USGS topographic surveys, the northern feature is not mapped until 2016[1] (See Figures 1, 5, and 7). Based upon historic aerial photographs, this northern feature is not observed in the 1931 aerial photograph (Figure 2). By 1970, the nearby sanitary sewer line is under construction which has resulted in the man-made ditch (Figure 3). This man-made ditch appears to be draining into a feature that coincides with northern feature. By 1979, the existing tennis club building is built, and the associated rear yard improvements are under construction. At this time, the majority of the on-site portion of the man-made ditch has been piped and filled (See Figure 4). By 2020, the northern feature is not apparent on the aerial photograph (Figure 8). However, the two existing pipes [15" and 36" Reinforced Concrete Pipes (RCPs)] that are the source of the northern feature still remain. According to Princeton Hydro, the drainage area of the northern feature is approximately 14.3 acres. Please see the attached annotated photograph numbers 7, 8, 9, and 10. The photograph locations are shown on Figure 8. EcolSciences asserts that the northern feature is not a regulated water under the Flood Hazard Area Control Act Rules.

For clarity, the "stream" on the previously approved Letter of Interpretation Line Verification (LOI-V) approved survey will be referred to as "westerly feature." The westerly feature has two branches. The easterly branch originates from a 12-inch reinforced concrete pipe at Wetland flag WB-12. The southerly branch continues in a straight-line man-made ditch from a 12" RCP near Wetland flag WB-2. Based upon current and historic USGS topographic surveys, this feature is not mapped (See Figures 1, 5, and 7). Based upon historic aerial photographs, this feature is apparent as a straight-line man-made ditch in 1931 originating from East Main Street (See Figure 2). By 1979, a significant portion of this feature has been piped and filled for the existing western side driveway of the shopping center (See Figure 4). This man-made ditch is still visible in the 2020 aerial photograph (Figure 8). According to Princeton Hydro, the drainage area of the northern feature is approximately 9.6 acres. Please see the attached annotated photographs numbers 2, 3, 5, and 6. The photograph locations are shown in Figure 8. EcolSciences asserts that the westerly feature is not a regulated water under the Flood Hazard Area Control Act Rules. If needed, a revised wetland survey can be provided to the Department to revise the current LOI to remove the stream label.

It should be noted that by 1984 (See Figure 6), an additional off-site straight-line man-made ditch is visible farther to the west from the westerly feature. This additional man-made ditch originates from a headwall and eventually disperses into the off-site wetlands. According to Princeton Hydro, the drainage area of the off-site feature is approximately 5.1 acres. Please see the attached annotated photograph number 4. The photograph locations are shown in Figure 8. EcolSciences asserts that this additional off-site feature is also not a regulated water under the Flood Hazard Area Control Act Rules.

[1] A new USGS topographic map series was launched in 2009, which are continuously updated via National, state, local, and commercial partnerships. It appears that after 2014, the USGS Topo Maps currently utilize NJDEP stream mapping.

Stormwater

1.) *The applicant is required to demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, post-construction runoff hydrographs for the two-, 10-, and 100-year storm events do not exceed, at any point in time, the pre-construction runoff hydrographs for the same storm events N.J.A.C. 7:8-5.6(b)1.*

Please refer to Appendix C of the Stormwater Management Report for design calculations and diagrams. The intent for POI-1 is to design stormwater management measures so that the post-construction peak runoff rates for the 2, 10, and 100 year storm events are 50%, 75%, and 80%, respectively, of the pre-construction peak runoff rates. The intent for POI-2 is to demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, post-construction runoff hydrographs for the 2, 10, and 100 year storm events do not exceed, at any point in time, the pre-construction runoff hydrographs for the same storm events.

2.) *Please demonstrate that pre and post construction time of concentration (Tc), is calculated according to the New Jersey Stormwater Best Management Practices Manual Chapter 5, Stormwater Management Quantity and Quality Standards, and post-construction condition, the maximum distance for which flow occurs as sheet flow is 100 ft, and the distance over which sheet flow occurs, L, is calculated using the McCuen-Spiess limitation.*

The existing and proposed time of concentration have been calculated in accordance with the New Jersey Stormwater Best Management Practices Manual Chapter 5. Please refer to the drainage area maps in Appendix D of the Stormwater Management Report for more detail.

3.) *Please demonstrate that the runoff from an impervious surface and from a pervious surface, each calculated separately, and a composite hydrograph are created by adding the separate runoff hydrographs from the impervious surface and the pervious surface, from which the overall peak flow rates were calculated.*

Please refer to Appendix C of the Stormwater Management Report for runoff hydrographs. The impervious surfaces and pervious surfaces have been separated and a composite link has been created to add the hydrographs from each.

4.) *Provide design details of pervious paving system in accordance with the with the New Jersey Stormwater Best Management Practices Manual, Green Infrastructure BMPs, Chapter 9.6, Pervious Paving Systems. Also, provide geotechnical report, seasonal highwater table details, GI BMPs cross-section, drain time, etc.,*

Please refer to the Preliminary & Final Site Plan (Sheet C-24) for a detail of the permeable pavers and (Sheet C-8) for a 'Test Pit Identification Table' depicting the seasonal highwater details. The Geotechnical Report prepared by Whitestone, LLC. has also been included in this submission.

5.) *The applicant is required to demonstrate all runoff from the water quality design storm that is discharged within the riparian zone must be treated, in accordance with the methods set forth at N.J.A.C. 7:8-5.5, to reduce the post-construction load of total suspended solids by 95 percent*

of the anticipated load from the developed site, expressed as an annual average N.J.A.C. 7:13-11.2 (j) 3.i

Please refer to Table 9 of the Stormwater Management Report for a summary of the weighted total suspended soil removal from the developed site.

6.) *According to N.J.A.C. 7:8-5.4, groundwater recharge standards, the design engineer shall, using the assumptions and factors for stormwater runoff and groundwater recharge calculations at N.J.A.C. 7:8- 5.7, either:*

i. *Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100 percent of the average annual pre-construction groundwater recharge volume for the site; or*
ii. *Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from pre-construction to post-construction for the two-year storm is infiltrated.*

Please refer to Table 10 of the Stormwater Management Report for a summary of the stormwater runoff volume reduction.

7.) *Provide stormwater BMP maintenance plan and manual.*

Please refer to the Stormwater Operations & Maintenance Manual included in this submission.

8.) *Provide digitally signed and sealed engineering and engineering certification.*

Digitally signed and sealed engineering certification has been provided on the engineering plans and reports.

9.) *Provide existing and proposed conditions drainage area maps including point of analysis. Existing and proposed outfall clearly mark and highlighted.*

Please refer to Appendix D of the Stormwater Management Report for existing and proposed drainage area maps. The Points of Interest have been called out on each drainage area map.

In addition to the above, the following items should be addressed in order for the Program to conduct an expedited review:

1. *To further address the unpermitted activities conducted within the northwestern portion of the property, and to further demonstrate minimization under N.J.A.C. 7:13-11.2 and the overall proposed ecological improvements to the site, please include additional plantings throughout this area. In addition, please remove the entire length of the existing gravel path located along/within the wetlands and the riparian zone onsite, and restore the area with native, non-invasive plantings. Note that the gravel path also seems to potentially be an unlawfully existing structure, constructed sometime between 1987 and 1995/97. For reference, the subject area is hashed in orange on Drawing NJDEP-3 of the attached markup plan. The Division is available*

to provide a recommended list of species. Note that additional restoration plantings have been determined as necessary to fully meet the criteria under N.J.A.C. 7:7A-8.1(d).

Additional native and non-invasive trees and shrubs and a seed mix are proposed to be planted in the majority of the area identified by the Department. Please note that there is an existing 30-foot wide sewer easement along the roughly northern and easterly property boundary along a portion of the delineated wetlands. No trees or shrubs are proposed to be planted within this existing 30-foot wide sewer easement, but will be planted with a native seed mix. In addition, the existing gravel path will be removed, and restored as described above.

2. *Drawing NJDEP-2: In accordance with N.J.A.C. 7:7A-8.3(f)4, identify the portion of the existing transition area on the property that will be restored and protected by future development through the filing of a conservation restriction. Please quantify the area to be protected by the deed. Otherwise, please demonstrate any reason this may not be practicable for the site.*

Sheets NJDEP-3 and NJDEP-4 are the FWW Replanting Plans, which are more suitable drawings as compared to NJDEP-2 sheet. The applicant will place a portion of the existing transition area that will be restored within a conservation restriction. Please note that there is an existing 30-foot wide sewer easement along the roughly northern and easterly property boundary along a portion of the delineated wetlands. Any transition areas within the existing 30-foot wide sewer easement will not be placed within a conservation restriction. See NJDEP-3 for the location of the proposed conservation restriction extent.

3. *Drawing NJDEP-4: Show the entire extent of the parcel boundary subject to the FHA Verification.*

Please see the revised NJDEP-5 sheet that addresses this revision. Additional sheets were added to the set, which results in the previous NJDEP-4 now currently known as NJDEP-5.

4. *Drawing NJDEP-5: Update the Riparian Zone Disturbance Key as follows:*
   a. *Distinguish the activities between the inner-and-outer 150-foot riparian zone.*
   b. *N.J.A.C. 7:13-11.2(x) does not apply to the project, as no vegetation is proposed to be disturbed for the removal of the existing fill/structures. Please reference "11.2(f)1 Restoration" or similar instead.*
   c. *Remove reference to a "mitigation area" within the last row; and replace with "planting area". Similarly, remove the "potential riparian zone mitigation area" notes from the plan.*
   d. *Update the riparian zone mitigation area row to distinguish between existing impervious areas to be restored and existing pervious area to be enhanced.*
   e. *Update the pink symbol (impervious to be revegetated/11.2(x)) to remove the section overlapping with the stormwater outfall.*

Please see the revised NJDEP-6 sheet that addresses the requested revisions. Additional sheets were added to the set, which results in the previous NJDEP-5 now currently known as NJDEP-6.

5. *Drawing NJDEP-2: Update the Freshwater Wetlands Permitting Key as follows:*
   a. *Group all activities proposed under the TAW-R, and include a total impact number for these activities listed in the 2nd, 3rd, 4th, and 5th rows of the table.*
   b. *Update the "transition area to replanted with native trees" to distinguish between existing impervious areas to be restored and existing pervious area to be enhanced.*
   c. *Update the green symbol (lawn-to-lawn) to remove from areas shown within the tree line.*
   d. *Update the pink symbol (impervious to be revegetated) to remove the section overlapping with the FWW-GP11 outfall.*

Please see the revised NJDEP-2 sheet that addresses the requested revisions.

6. *Drawings NJDEP-2&5: The gravel play area and shed seemed to have been constructed between 1991 and 1995/97, and the paved pad between 1995/97 and 2002; however, only the paved pad and shed are indicated as "historically disturbed areas to be revegetated." Please update to group the gravel play area under this category as well.*

Please see the revised NJDEP-2 and NJDEP-6 sheets that address the requested revisions. Additional sheets were added to the set, which results in the previous NJDEP-5 now currently known as NJDEP-6.

7. *Drawings NJDEP-2&5: Clarify the "revegetated" note in the disturbance tables; such as if they will be restored with a pervious lawn mix or native herbaceous seed mix.*

NJDEP-3 and NJDEP-7 are the overall replanting sheets, so it is more appropriate to make these changes on those sheets. Please see those changes on those sheets.

8. *Drawings NJDEP-3&6: As described above, provide a coherent planting plan throughout the previously disturbed area and vegetated area to remain. Plantings and seed mixes should especially cover all structures and surfaces to be removed.*

Please see the revised NJDEP-3, NJDEP-4, NJDEP-7, and NJDEP-8 sheets that address the requested revisions.

9. *Drawings NJDEP-3&6: Only 8 trees containing one species and 253 shrubs containing 4 species are proposed. To provide a robust enhancement and restoration area, please include additional tree species; and to promote species diversity and avoid loss of plantings due to a pest or disease, please include a greater number of species. The Division is available to provide a recommended list of species.*

Please see the revised NJDEP-4 and NJDEP-8 sheets that address the requested revisions. Additional sheets were added to the set, which results in the previous NJDEP-3 and NJDEP-6 now currently known as NJDEP-4 and NJDEP-8.

10. *Drawings NJDEP-3&6: Update the pollinator meadow mix (#ZXMIXPOLMED) to remove the nonnative species purple coneflower (Echinacea purpurea).*

Please see the revised NJDEP-4 and NJDEP-8 sheets that address the requested revision. Additional sheets were added to the set, which results in the previous NJDEP-3 and NJDEP-6 now currently known as NJDEP-4 and NJDEP-8.

11. *Add a note to all plans showing wetlands to indicate that the freshwater wetlands shown are per the LOI-V issued for the site on 10/1/2020 under File and Activity No. 1418-20-0001.1 FWW200001.*

Please see the revised NJDEP-1, NJDEP-2, NJDEP-3, and NJDEP-4 that addresses the requested revision.

If you have any questions, please feel free to contact me.

Very truly yours,

EcolSciences, Inc.

Karin Tekel

Karin Tekel
Assistant Vice President

KT/bms
enclosures

cc: NJDEP Application Support Section
Borough of Mendham Clerk w/ Attachments on CD via Certified Mail
Mr. Thomas Maoli
Mr. Michael Kovacs